AMENDMENTS TO THE CLAIMS

Please cancel claims 6-8, 10-12, and 14-20, without prejudice. Claims 30-44 had

been cancelled without prejudice. Please amend claims 1-3, 5, 9, 21-23, 25-29, 45-47

and 49 as shown in the PENDING CLAIMS section bellow. Claims 4, 13, 24, and 48

remain unchanged. Please add new claims 50-63 as shown in the PENDING CLAIMS

section. The PENDING CLAIMS section presents a detailed listing of all claims that are,

or were, in the application, using status identifiers.

PENDING CLAIMS

1.   (Currently Amended) A network access server (NAS) providing a connection to a

user in a data communications network, said NAS being capable of communicating with

a home gateway server (HGS) maintaining a pool of IP addresses for allocation to

authorized users associated with the NAS, said NAS comprising:

        a first memory location for storing an identification of a user;

        an IP address requester authenticator for requesting an IP address from asking the

HGS for an IP address on behalf of a the user, said asking occurring without using a

tunneling protocol, the HGS maintaining a pool of IP addresses for allocation to

authorized users associated with the NAS the use of a tunnel; and

        an IP address relayer for receiving an IP address allocated to the user from the

HGS and for relaying the allocated IP address to the user; and

        a second memory coupled with said IP address requester and said IP address

relayer, said memory storing association between an identification of the user and the IP

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address allocated to the user ~~location associated with the first memory for storing the IP address of the user received from the HGS~~.

2.   (Currently Amended) The network access server of claim 1, further comprising:

a detector for periodically detecting connection of the user to the NAS, said detector updating the association in said memory to indicate that the allocated IP address is no longer in use if the connection of the user is lost;

~~a keep-alive sender for periodically informing the HGS that the user is still connected to the NAS~~.

3.   (Previously Amended)   The network access server of claim 1, further comprising:

a receiver for receiving periodic queries from the HGS about the status of the user connection to the NAS; and

a responder responsive to the ~~said~~ periodic queries for informing the HGS that the user is still connected to the NAS.

4.   (Original)   The network access server of claim 1, further comprising:

a receiver for receiving periodic signals from the user;

a forwarder responsive to said receiver for forwarding information to the HGS that the user is still connected to the NAS.

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5. (Currently Amended) The network access server of claim 1, further comprising:

an HGS identifier responsive to log-in information provided by the user, said HGS identifier for identifying an HGS to which the ~~to forward the user's~~ request for an IP address is to be transmitted.

6-8. (Cancelled)

9. (Currently Amended) The network access server of claim 1, further comprising:

an ~~An~~ HGS identifier responsive to call information associated with the incoming line used by the user to access the NAS, the HGS identifier ~~for~~ identifying an HGS to which the ~~to forward the user's~~ request for an IP address is to be transmitted.

10-12. (Cancelled)

13. (Original) The network access server of claim 1, further comprising:

a generator, responsive to the receipt of a disconnection request from the user, for generating and sending a notice to the HGS that the user is no longer connected to the NAS.

14-20. (Cancelled)

21.   (Currently Amended)   A method for providing an IP address to a user in a data communications network, the method comprising:

establishing a connection with a user;

receiving authentication information ~~an identification and a request for an IP address~~ from the user, the authentication information including a user identification;

storing the <u>user</u> identification in a memory;

requesting <u>an</u> ~~the~~ IP address from a home gateway server (HGS) on behalf of the user<u>,</u> ~~said requesting occurring~~ without <u>using a tunneling protocol, the HGS maintaining a pool of IP addresses for allocation to authorized users associated with the NAS</u> ~~the use of a tunnel~~;

receiving <u>an</u> ~~the~~ IP address <u>allocated to the user</u> from <u>the HGS</u> ~~a remote server~~;

<u>creating and</u> storing <u>an association</u> between the user identification <u>and</u> the <u>allocated</u> IP address in <u>the</u> memory; and

transmitting the <u>allocated</u> IP address to the user.

22.   (Currently Amended)   The method of claim 21, further comprising:

detecting a continuing connection with the user; and

sending periodic keep-alive messages associated with the user to the <u>HGS</u> ~~remote server for~~ as long as <u>the continuing</u> ~~continued~~ connection with the user is detected.

23.   (Currently Amended)   The method of claim 21, further comprising:

receiving periodic queries from the HGS about the status of the user connection;

and

responding to the ~~said~~ periodic queries that the user is still connected.

24.   (Currently Amended)   The method of claim 21, further comprising:

receiving periodic in-use signals from the user; and

forwarding information to the HGS that the user is still connected.

25.   (Currently Amended)   The method of claim 24, further comprising:

determining ~~identifying~~ an HGS to which ~~to forward~~ the ~~user's~~ request for an IP

address to be transmitted, ~~said identifying in response to call information associated with~~

~~an incoming line used by the user~~.

26.   (Currently Amended)   A program storage device readable by a machine,

tangibly embodying a program of instructions readable by the machine to perform a

method for providing an IP address to a user in a data communications network, the

method comprising:

establishing a connection with a user;

receiving authentication information ~~an identification and a request for an IP~~

~~address~~ from the user, the authentication information including a user identification;

storing the user identification in a memory;

requesting an ~~the~~ IP address from a home gateway server (HGS) on behalf of the

user, ~~said requesting occurring~~ without using a tunneling protocol, the HGS maintaining a

pool of IP addresses for allocation to authorized users associated with the NAS ~~the use of a tunnel~~;

receiving ~~an~~ the IP address allocated to the user from the HGS ~~a remote server~~;

storing an association between the user identification and the allocated IP address in the memory; and

transmitting the allocated IP address to the user.

27.   (Currently Amended)   The program storage device of claim 26, wherein the method further comprises:

detecting a continuing connection with the user; and

sending periodic keep-alive messages associated with the user to the HGS ~~remote server for~~ as long as the continuing ~~continued~~ connection with the user is detected.

28.   (Currently Amended)   The program storage device of claim 26, wherein the method further comprises:

receiving periodic queries from the HGS about the status of the user connection; and

responding to the ~~said~~ periodic queries that the user is still connected.

29.   (Currently Amended)   The program storage device of claim 26, wherein the method further comprises:

receiving periodic queries from the HGS about the status of the user connection; and

responding to the said periodic queries that the user is still connected.

30-44. (Cancelled)

45. (Currently Amended) An apparatus for providing an IP address to a user in a data communications network, the apparatus comprising:

means for establishing a connection with a user;

means for receiving authentication information an identification and a request for an IP address from the user, the authentication information including a user identification;

means for storing the user identification in a memory;

means for requesting an the IP address from a home gateway server (HGS) on behalf of the user, said requesting occurring without using a tunneling protocol, the HGS maintaining a pool of IP addresses for allocation to authorized users associated with the NAS the use of a tunnel;

means for receiving an the IP address allocated to the user from the HGS a remote server;

means for creating and storing an association between the user identification and the allocated IP address in the memory; and

means for transmitting the allocated IP address to the user.

46. (Currently Amended)   The apparatus of claim 45, further comprising:

means for detecting a continuing connection with the user; and

means for sending periodic keep-alive messages associated with the user to the

HGS ~~remote server for~~ as long as <u>the continuing</u> ~~continued~~ connection with the user is

detected.

47. (Currently Amended)   The apparatus of claim 45, further comprising:

means for receiving periodic queries from the HGS about the status of the user

connection; and

means for responding to <u>the</u> ~~said~~ periodic queries that the user is still connected.

48. (Previously Added)   The apparatus of claim 47, further comprising:

means for receiving periodic in-use signals from the user; and

means for forwarding information to the HGS that the user is still connected.

49. (Currently Amended)   The apparatus of claim 47, further comprising:

means for <u>determining</u> ~~identifying~~ an HGS to which ~~to forward~~ the ~~user's~~ request

for an IP address <u>to be transmitted</u>~~, said identifying in response to call information~~

~~associated with an incoming line used by the user~~.

50. (New)   The network access server in accordance with claim 2, further

comprising:

a keep-alive sender coupled to said detector, said keep-alive sender periodically

informing the HGS that the user is still connected to the NAS until the connection is lost.

51.   (New)   The network access server in accordance with claim 1 wherein said

IP address requester transmits the user's authentication information to the HGS with the

request for an IP address.

52.   (New)   The network access server in accordance with claim 1 wherein said

IP-address requester uses Remote Authentication Dial In User Service (RADIUS).

53.   (New)   The method in accordance with claim 21 wherein said requesting

includes:

transmitting the user's authentication information to the HGS.

54.   (New)   The method in accordance with claim 22, further comprising:

updating the association in said memory to indicate that the allocated IP address is

no longer in use if the connection is lost.

55.   (New)   The method in accordance with claim 21, further comprising:

receiving a disconnection request from the user; and

generating and sending a notice to the HGS that the user is no longer connected.

56.   (New)   The method in accordance with claim 25, wherein said determining

is in response to log-in information provided by the user.

57.   (New)   The method in accordance with claim 25, wherein said determining

is in response to call information associated with an incoming line used by the user.

58.   (New)   The apparatus in accordance with claim 45 wherein said means for

requesting includes:

        means for transmitting the user's authentication information to the HGS.

59.   (New)   The apparatus in accordance with claim 46, further comprising:

        means for updating the association in said memory to indicate that the allocated

IP address is no longer in use if the connection is lost.

60.   (New)   The apparatus in accordance with claim 45, further comprising:

        means for receiving a disconnection request from the user; and

        means for generating and sending a notice to the HGS that the user is no longer

connected.

61.   (New)   The apparatus in accordance with claim 49, wherein said means for

determining performs in response to log-in information provided by the user.

62.   (New)   The apparatus in accordance with claim 49, wherein said means for

determining performs in response to call information associated with an incoming line

used by the user.

63.   (New)   The network access server in accordance with claim 1 wherein said

memory stores the association as long as the user maintains the connection with said

NAS.